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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,136	09/30/2003	Kazuyuki Inokuma	10873.1319US01	6407

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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/676,136

Applicant(s)

INOKUMA ET AL.

Examiner

Thanh X. Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to remarks filed November 22, 2005. Claims 1-15 are currently pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-15, it is unclear in its given context what it means to have transistors that are formed "of the same electric conductor." Transistors are formed from semiconductors. Examiner recommends using the terms --of the same conductivity type--.

Regarding claims 13-15, the claims fail to further limit the invention as no further structure is set forth.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 6 and 9-15, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tu et al. (U.S. Patent 6,521,881) in view of Tanner et al. (U.S.

Patent 4,631,400).

Regarding claims 1-3, 5, 6 and 12-15, Tu et al. disclose (see Fig. 1) a solid state imaging device comprising: an imaging semiconductor chip (16); and an image processing semiconductor chip (12). Tu et al. also disclose (see Fig. 1) the imaging semiconductor chip is stacked on the image processing semiconductor chip, and a connecting bonding wire (22). The image processing chip inherently processes static or dynamic images. Further as understood, the device may be incorporated into any type of equipment including cellular phones, cameras or information terminals as desired. Tu et al. do not specifically disclose the type of transistors in the chips. Tanner et al. teach (see col. 2, lines 58-60) an imaging semiconductor chip in which all transistors are formed of the same conductivity type (NMOS IC chip) and having an amplifier (26, 27, 28; see Fig. 6). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an imaging chip configuration in the apparatus of Tu et al. in view of Tanner et al. to simply manufacturing or to obtain a more compact chip. Furthermore, CMOS image processing chips are ubiquitous. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide CMOS image processing chips in the apparatus of Tu et al. in view of Tanner et al. to reduce costs as such CMOS processing of chips is readily available.

Regarding claims 9-11, Tu et al. and Tanner et al. disclose the claimed invention as set forth above. The stacked arrangement makes every input/output terminals of the chips close to each other. Tu et al. further disclose (see col. 2, line 59) that the image

processing chip is a digital signal processor (DSP). Tu et al. do not specifically disclose the specifics of the image processing chip. However, it is notoriously well known in the art that DSP chips comprise timing generators (clocks); a gain control amplifier and A/D converters. Timing inputs and outputs would be inherent in such devices. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an image processing chip in the apparatus of Tu et al. in view of Tanner et al. to digitally process image signals for improved and more reliable performance.

Regarding claim 4, Tu et al. and Tanner et al. disclose the claimed invention as set forth above. Tu et al. and Tanner et al. do not specifically disclose all PMOS transistors. However, choosing which type of conductivity of transistors is a matter of design choice and requires only routine skill in the art. Furthermore, it is well known that PMOS transistors are more power efficient. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use PMOS transistors only in the apparatus of Tu et al. in view of Tanner to obtain a more efficient device.

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tu et al. in view of Tanner et al., further in view of Tago (U.S. Patent 6,844,619).

Regarding claims 7 and 8, Tu et al. and Tanner et al. disclose the claimed invention as set forth above. Tu et al. and Tanner et al. do not specifically disclose the use of through electrodes. Tago teaches (see Fig. 5) the use of through electrodes (11) in a stacked chip arrangement. Tago also recognizes (see col. 5-6) that through

electrodes provide more compact and low cost alternative to other mounting techniques.

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a through electrode mounting scheme in the apparatus of Tu et al. in view of Tanner and Tago as taught.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/658,700. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are simply a broader version of the '700 patent application. The presence of bonding wires and through electrodes are well known.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

8. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is 571-272-2441. The examiner can normally be reached on M-F 6:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thanh X Luu
Primary Examiner
Art Unit 2878